REMARKS

Reconsideration of the pending application is respectfully requested on the basis of the following particulars:

Objections to the specification

The specification presently stands objected to as including phrases that are not clear, concise, and exact. The specification has been rewritten, and substitute specification is included herewith. In view of the substitute specification, withdrawal of the objection is respectfully requested.

Claim objections

Claims 1, 3, 4, and 6 presently stand objected to for certain informalities, and claim 8 is objected to as being in improper form. Claims 1-8 have been cancelled. Accordingly, withdrawal of this objection is respectfully requested.

Rejection of claims 1-8 under 35 U.S.C. § 112, second paragraph

The claims presently stand rejected as being indefinite. Claims 1-8 have been cancelled, rendering this rejection moot. Accordingly, withdrawal of the rejection is requested.

Rejection of claim 3 under 35 U.S.C. § 101

Claim 3 presently stands rejected as being directed to non-statutory subject matter. Claim 3 has been cancelled, rendering this rejection moot. Accordingly, withdrawal of the rejection is requested.

Rejection of claims 1-8 under 35 U.S.C. § 102 and 103

Claims 1, 6, and 7 presently stand rejected as being anticipated by Polidoro (U.S. 5,768,137). Claims 2, 6, and 7 are rejected as anticipated by Balic (U.S. 2003/0187624), and claims 3, 6, and 7 are rejected as anticipated by Dereli ("Optimisation of process

planning functions by genetic algorithms"). Claims 4 and 5 are rejected as being unpatentable over Polidoro in view of Fainstein (U.S. 6,476,575).

Cancellation of claims 1-8 has rendered these rejections moot, and therefore withdrawal of the rejections is respectfully requested.

New claims

New claims 9-17 are added. It is respectfully submitted that claims 9-17 are allowable over the cited references.

Independent claim 9 sets forth a numerical control apparatus for controlling machinability data selection in a machining environment, comprising means operative in response to input data of a workpiece, the input data comprising workpiece characteristic data including at least a material type and hardness of the workpiece; means of performing fuzzification of said input data to produce fuzzy input data; an inference component operative to produce fuzzy output data from said fuzzy input data, the inference component including fuzzy control means for applying a set of predefined fuzzy rules to said fuzzy input data as to produce said fuzzy output data, wherein the fuzzy output data comprises machining conditions including at least cutting speed and depth of cut or feed rate'data; means of performing defuzzification of said output data to produce crisp output data; and means of conveying said crisp output data to said machining environment.

Thus, according to claim 9, input data including at least material type and hardness is used to produce output data including at least cutting speed and depth of cut or feed rate, according to an inference component that applies a predefined set of fuzzy rules.

Independent claim 15 is similar to claim 9, except that a multilayer neural network comprising a network of summation neurons and product neurons is used to transform the input data into the output data instead of the fuzzy means set forth in claim 9.

It is respectfully submitted that none of the cited references disclose such a transformation of material type and hardness data to cutting speed and depth of cut or feed rate.

None of Polidoro, Balic, nor Dereli disclose or suggest a system wherein input data including at least material type and hardness is used to produce output data including at least cutting speed and depth of cut or feed rate, according to an inference component that applies a predefined set of fuzzy rules.

While Polidoro uses LASER alignment for positioning in a machining system, there is no teaching or suggestion that Polidoro's system is provide with workpiece characteristic data that includes a material type and hardness of the workpiece. Moreover, there is no teaching or suggestion by Polidoro that any cutting speed and depth of cut or feed rate output data is generated from such workpiece characteristic data.

Fainstein, applied by the examiner in rejection of claims 4 and 5 in combination with Polidoro, also fails to disclose or suggest the claimed input and output data. Instead, and in contrast with the present invention, Fainstein "concerns the adaptive control of turning operations performed on lathes, where the controlled input parameter is a feed rate of the cutting tool and the output parameter is a cutting torque, cutting force or consumed power of the lathe's spindle drive."

Thus, Fainstein does not disclose or suggest processing of material type and hardness data to determine cutting speed and depth of cut or feed rate.

With respect to claim 15, it is respectfully submitted that none of the cited references disclose or suggest a multilayer neural network comprising a network of summation neurons and product neurons.

It is respectfully submitted that, for at least these reasons, claims 9 and 15, and their respective dependent claims 10-14 and 16-17 are allowable over the cited references.

Conclusion

In view of the amendments to the claims, and in further view of the foregoing remarks, it is respectfully submitted that the application is in condition for allowance. Accordingly, it is requested that claims 9-17 be allowed and the application be passed to issue.

If any issues remain that may be resolved by a telephone or facsimile communication with the Applicant's attorney, the Examiner is invited to contact the undersigned at the numbers shown.

Respectfully submitted,

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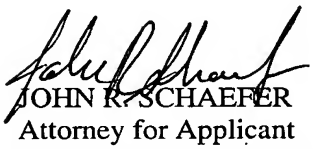

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